

--A substrate inspection system includes a charged particle beam irradiation part; an electron image detecting part; a mapping projecting part which projects the secondary and/or reflected charge particle generated from a substrate on the electron image detecting part; and a control part. The electron image detecting part includes a charged particle multiplying device which has an entrance surface for the secondary and/or reflected charged particle, and an image grabbing element having a fluorescent body with a light receiving surface to receive the multiplied secondary and/or reflected charged particle and a fluorescent surface on which an optical image appears. The control part causes the fluorescent surface of the fluorescent body to be grounded and applies a first negative potential to the entrance surface of the charged particle multiplying device.--

REMARKS

In this Amendment, Applicants amend the Abstract to comply with Examiner-required corrections. Applicants also submit a corrected formal drawing of Fig. 3, also to comply with an Examiner-required correction. Claims 1 – 20 are pending.

Regarding the Office Action:

In the Office Action, the Examiner objected to the drawings and required “corrected drawings” as one option to overcome the objection (Office Action, p. 2); objected to the Specification because of the Abstract of the disclosure; rejected claims 1 – 11 and 13 – 20 under 35 U.S.C. § 102(b) as anticipated by Todokoro, et al. (U.S. Patent No. 6,310,341); and rejected claim 12 under 35 U.S.C. § 103(a) as unpatentable over Todokoro in view of Yamazaki, et al. (U.S. Patent No. 6,038,018).

Applicants appreciate the Examiner’s thorough examination of this application, especially the detailed citations which aided Applicants in reviewing the Examiner’s comments.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

Applicants respectfully traverse the objections and rejections, as detailed above, for the following reasons.

Regarding the Objection to the Drawings:

The Examiner objected to the drawings, "because the label "FIG. 1" in Figure 3 is unclear," and "because [Figure 3 includes] the following reference sign(s) not mentioned in the description: 35" (Office Action, p. 2). For both objections, the Examiner indicated she would accept "corrected drawings" "to avoid abandonment of the application" (Office Action, p. 2).

In response to the Examiner's requirement, Applicants attach a paper entitled "Submission of Corrected Formal Drawing," which includes one formal patent drawing, containing corrected Fig. 3. Applicants have deleted the references to "FIG. 1" and "35" in Figure 3.

Applicants request that this corrected formal drawing be made of official record in the above-identified patent application. If the formal drawing for any reason is not in full compliance with the pertinent statutes and regulations, please so advise the undersigned.

Regarding the Objection to the Abstract:

The Examiner objected to Applicants' Abstract because "it exceeds the 150-word limit" (Office Action, p. 3), and required correction. Applicants have amended the Abstract to comply with the Examiner's required corrections, reducing the number of words in the Abstract to approximately 128, and accordingly deem this objection overcome.

Applicants point out for the record that "[t]he abstract will not be used for interpreting the scope of the claims." *See* 37 C.F.R. § 1.72(b). Applicants attach a Substitute Abstract in clean form on a separate page. No new matter has been introduced, in accordance with the requirements of 37 C.F.R. § 1.121(f).

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

Regarding the Rejection of Claims 1 – 11 and 13 – 20 under 35 U.S.C. § 102(b):

Applicants respectfully traverse the rejection of claims 1 – 11 and 13 – 20 under 35 U.S.C. § 102(b) as anticipated by Todokoro.

In order to properly establish that Todokoro anticipates Applicants' claimed invention under 35 U.S.C. § 102, each and every element of each of the claims in issue must be found, either expressly described or under principles of inherency, in that single reference. Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." See M.P.E.P. § 2131, 8th Ed., Rev. 1 (Feb. 2003), p. 2100-70, quoting *Richardson v. Suzuki Motor Co.*, 868 F.2d 1126, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). Regarding the 35 U.S.C. § 102(b) rejection, Todokoro does not teach each and every element of Applicants' present invention as claimed.

The Examiner alleged "Todokoro et al. discloses in FIGS. 1, 2, and 5 a system and method of inspecting a substrate..." (Office Action, p. 3). Todokoro discloses a structure in which an "electron image amplified by the MCP 108 accelerated toward a fluorescent screen 109 to form a on the fluorescent screen 109. The two-dimensional optical image is observed by being taken by an image tube 119." See Todokoro, col. 3, ll. 29 – 33, for example. Todokoro acknowledges that when "an insulating material is used in the sample of substrate such as a semiconductor wafer," "the secondary electrons and the back scattered electrons produced by the electron beam are widely deviated in energy at emitting, there is a problem of difficulty in improving the resolution." See Todokoro, col. 4, ll. 4 – 12, for example. Todokoro's solution for this problem is to employ an energy filter, wherein "the energy filter separates the secondary electrons and the back scattered electrons and at the same time limits the energy distribution in order to improve the resolution of the projected image." See Todokoro, col. 4, ll. 26 – 29, for

example. It is the electrons that pass through the energy filter that reach “a fluorescent screen and an image tube, as shown in FIG. 1.” *See* Todokoro, col. 5, ll. 13 – 15, for example. To manage such an image, Todokoro only discloses that the image system control unit 502 controls an imaging system 501, but does not specify how this is accomplished. *See* Todokoro, col. 8, ll. 1 – 5, for example.

In contrast, Applicants’ claimed “substrate inspection system” provides, among other things, “a control part which causes said fluorescent surface of said fluorescent body to be grounded and which applies a first negative potential to the entrance surface of said charged particle multiplying device” (claim 1). Todokoro does not disclose at least this element of Applicants’ independent claim 1. As mentioned, Todokoro does not ground or apply potential to the fluorescent screen and image tube, and instead focuses on improving resolution by energy filtration.

Also, Applicants’ claimed “method for controlling a substrate inspection system” provides, among other things, “a fluorescent surface on which the optical image appears, said method comprising: causing the fluorescent surface of said fluorescent body to be grounded, and applying a first negative potential to the entrance surface of said charged particle multiplying device” (claim 13). Todokoro also does not disclose at least this element of Applicants’ independent claim 13. As mentioned, Todokoro does not ground or apply potential to the fluorescent screen and image tube, and instead focuses on improving resolution by energy filtration.

Thus, since Todokoro does not disclose each and every element of Applicants’ independent claims 1 and 13, Todokoro does not anticipate Applicants’ claimed invention. In addition to Todokoro not anticipating the present invention, Todokoro does not disclose an

identical invention, let alone in as complete detail as contained in Applicants' independent claims 1 and 13. Applicants therefore submit that the Examiner has not met these essential requirements of anticipation for a proper 35 U.S.C. § 102(b) rejection.

Therefore, Applicants submit that independent claims 1 and 13 are allowable, for the reasons already argued above. In addition, dependent claims 2 – 11 and 14 – 20 are also allowable at least by virtue of their respective dependencies from allowable base claims 1 and 13. Therefore, Applicants respectfully submit that the improper 35 U.S.C. § 102(b) rejection of claims 1 – 11 and 13 – 20 should be withdrawn.

Regarding the Rejection of Claim 12 under 35 U.S.C. § 103(a):

Applicants respectfully traverse the rejection of claim 12 under 35 U.S.C. § 103(a) as unpatentable over Todokoro in view of Yamazaki; and respectfully contravene the Examiner's allegation that "it would have been obvious to one having ordinary skill in the art at the time of the invention to include the TDICCD taught by Yamazaki et al. in the system of Todokoro et al." (Office Action, p. 4). Applicants respectfully disagree with the Examiner's arguments and conclusions, and submit that a *prima facie* case of obviousness has not been established.

A *prima facie* case of obviousness has not been made, since the Examiner does not show that all the elements of Applicants' claim 12 are met in the cited references, taken alone or in combination, does not show that there is any suggestion or motivation to modify the cited references to result in the claimed invention, and does not show there would be any reasonable expectation of success from so doing. "To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." M.P.E.P. § 2143.03, p. 2100-128. Furthermore, Applicants note dependent claim 12 is directed to a combination including everything recited in the base claim and what is recited in the dependent

claim. See M.P.E.P. § 608.01(n)(III), p. 600-77. Todokoro and Yamazaki, taken alone or in combination, do not teach or suggest at least the recitations of Applicants' dependent claim 12.

Applicants have already demonstrated above that Todokoro does not teach or suggest all the recitations of Applicants' independent claim 1, and therefore, for at least the reasons stated above, Applicants' claim 12 is not obvious. The Examiner's application of Yamazaki to allegedly "[disclose] an image grabbing element that include a Time Delay Integrator Charge Couple Device (TDICCD) element in a substrate inspecting system" (Office Action, p. 4) still does not cure Todokoro's deficiencies in that neither reference teaches nor suggests at least Applicants' claimed "substrate inspection system," which provides "a control part which causes said fluorescent surface of said fluorescent body to be grounded and which applies a first negative potential to the entrance surface of said charged particle multiplying device" (claim 1).

The Examiner has therefore not met at least one of the essential criteria for establishing a *prima facie* case of obviousness, wherein "the prior art reference (or references when combined) must teach or suggest all the claim limitations." See M.P.E.P. §§ 2142, 2143, and 2143.03.

Even though Todokoro, taken alone or in combination with Yamazaki, does not teach or suggest all the features of Applicants' claimed invention, the Examiner's application of Yamazaki as a reference does not render the recitations of Applicants' claims obvious. Even if the Examiner's characterization of Yamazaki were correct (which Applicants dispute), this still does not establish that there would have been the requisite suggestion or motivation to modify Todokori with Yamazaki. "The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." M.P.E.P. § 2143.01, p. 2100-126, citing *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (emphasis in original).

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

Since Todokoro and Yamazaki, taken alone or in combination, do not teach or suggest all the recitations of Applicants' claimed invention, and there can be no suggestion or motivation in the cited references to modify Todokoro with Yamazaki. Applicants submit that the cited references do not suggest the desirability of their modification to produce Applicants' present invention.

In addition to the fact that Todokoro does not teach or suggest all the recitations of Applicants' claimed invention, Todokoro does not provide the requisite motivation for its modification with Yamazaki, or any reasonable expectation of success from so doing. Applicants have already established that Todokoro does not teach or suggest Applicants' claimed invention. Therefore, whether or not Todokoro and Yamazaki's combination "increases effectiveness at high speeds" (Office Action, p. 4) (which Applicants dispute), the Examiner cannot draw a conclusion of obviousness, because Applicants have already demonstrated that Todokoro and Yamazaki, taken alone or in combination, still do not teach or suggest all the elements of Applicants' claimed invention. Applicants further submit that, according to the M.P.E.P., the Examiner's citation of Yamazaki in combination with Todokoro is not sufficient for the Examiner to establish *prima facie* obviousness.

Thus, dependent claim 12 is allowable for the reasons presented herein, in addition to being allowable at least by virtue of its dependence from allowable base claim 1. Therefore, Applicants respectfully submit that the Examiner should withdraw the improper 35 U.S.C. § 103(a) rejection.

Conclusion:

In making various references to the specification and drawings set forth herein, it is understood that Applicants are in no way intending to limit the scope of the claims to the

exemplary embodiments described in the specification and illustrated in the drawings. Rather, Applicants expressly affirm that they are entitled to have the claims interpreted broadly, to the maximum extent permitted by statute, regulation, and applicable case law. Applicants respectfully point out to the Examiner that “[e]ach claim must be separately analyzed and given its broadest reasonable interpretation in light of and consistent with the written description.” M.P.E.P. § 2163(II)(A)(1), p. 2100-163.

In view of the foregoing remarks, Applicants request the Examiner’s reconsideration of the application and submit that the objections and rejections detailed above should be withdrawn. For the reasons articulated herein, Applicants submit that claims 1 – 20 are allowable, for the reasons already argued above. Applicants therefore submit that pending claims 1 – 20 are in condition for allowance. A favorable action is requested.

Should the Examiner continue to dispute the patentability of the claims after consideration of this Amendment, Applicants encourage the Examiner to contact Applicants’ undersigned representative by telephone to discuss any remaining issues or to resolve any misunderstandings.

Please grant any extensions of time under 37 C.F.R. § 1.136 required in entering this response. If there are any fees due under 37 C.F.R. § 1.16 or 1.17, which are not enclosed,

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

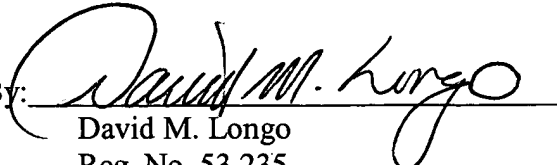
1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: June 17, 2003

By: 
David M. Longo
Reg. No. 53,235

/direct telephone: (202) 408-4489/

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com